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ABSTRACT

A simulation game being used in the economics department at the University of North Dakota to introduce students to the world of banking is described. The rationale for this approach is that the economics curriculum tends to be more conceptual than practical in content, and provides limited internship opportunities. The simulation game approach helps the student to understand the practical aspects of banking or the factors affecting bank decisions and operations. The Stanford Bank Management Simulation (SBMS) is a competitive game by which participating students are divided into teams, each of which manages an individual bank. Once the essential bank organization is established, each bank outlines the goals and strategies it will follow for a hypothetical 3-year period. Each bank also provides a set of decisions for the next quarter that will help accomplish the short- and long-term goals delineated in the strategy sessions. After each decision, banks are required to submit reports describing decisions and the reasons for the course of action. Each bank receives information about all of the competing banks and students become adept at reading charts on areas such as stock prices, earnings per share, and loan deposit ratios. Teaching concerns relating to student anxiety, grading, and integration of material are briefly addressed. (SW)

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COLLEGE TEACHING MONOGRAPH

To Simulate or Not to Simulate? Bridging the Gap from Classroom to Profession

by

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COLLEGE TEACHING MONOGRAPHS

This series of monographs has been produced to bring attention to significant ideas and developments in college teaching. The series allows college teachers at the University of North Dakota and elsewhere to share their insights and their experimentation with approaches to college level learning and instruction.

Each essay has been written to be interesting--and even helpful--to other college teachers. The authors, by putting their ideas and approaches in the public view, invite peer and citizen review. But above all, these essays give acknowledgement, even celebration, to excellence in college teaching.

You are invited to contribute to this monograph series with your own essay or by encouraging colleagues to write about their teaching. The Office of Isntructional Development, at the University of North Dakota, provides editorial assistance in the preparation of each monograph. Each essay is reviewed by the editors and an editorial panel for quality of thought and experimentation and for interest to other college teachers.

We hope you enjoy this series.

Editors:

Robert E. Young
Jacqueline D. Davis

Editor's Introduction:

Making the transition from the campus to the professional world can cause many students anxiety and uncertainty about their professional qualifications. Disciplines have different ways of dealing with this problem--internships, practice programs, and courses oriented more toward solving practical rather than theoretical problems. The following is a description of one approach--a simulation game--used in the Economics department at the University of North Dakota.

The game described is geared specifically to banking majors, but the technique itself is one which may be applied to a number of disciplines to help students make the transition from school to job less abruptly and to take with them more practical experience when they enter their professional worlds.

In addition to Professor Markovich, a number of other University of North Dakota faculty members are using simulation games. These include:

College of Nursing
Susan Hunter--Medical Surgical Nursing

School of Medicine
William Goodall--director of Focal Problems course, shared by Medical School faculty

Management
Fred Lawrence, Fred Harris, Donald Porter, Allen Baillie, Tom Basuray, Randy Newman--Business Policy, Small Business Management, and Production Management

Geography
Doug Munski--Cultural Geography; Floyd Hickok--Geography of North America

Center for Teaching and Learning
Steve Harlow and David Kuschner--Child Development

We hope that this monograph and this beginning list of others using simulation games in their instruction might stimulate even more experimentation with this promising approach to student learning.

To Simulate or Not to Simulate?
Bridging the Gap from Classroom to Profession

by
Denise Markovich
University of North Dakota

To simulate or not to simulate? That may well be one of the questions facing many college teachers today. If there is interest in introducing new ideas into the classroom or in adopting new teaching techniques, then a simulation game, which gives students "real world" experience in the classroom, is one possible method for realizing these goals. But if there is concern about flash-in-the-pan devices and skepticism of their long term effect, there may be some resistance to the use of simulation games. Moreover, there are no guarantees that all of the fun surrounding a game will actually translate into learning or that the skills fostered during game play will be carried over into other classroom activities or professional practice.

Yet there is evidence that suggests simulations can be an effective way to teach certain academic and professional skills,[1] and perhaps there is reassurance in the knowledge that simulations are not as new or transient as we might think. Games and gaming contests common to many cultures have a long history. They have been as simple as Hopscotch and Tug of War, popular in ancient Rome, and as complex as chess and "Neue Kriegspiel", a war game developed in Schleswig in 1798. But all games have originated in the customs, beliefs, or institutions of their particular environments.

The simulation game as a teaching technique reflects our changing environment in post-secondary education and attempts to overcome some of the limiting and static qualities of the college classroom by introducing

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[1]Abt, Clark C. Serious Games. New York; Viking Press, 1970; Boocock, Savane S. and Schild, E. O., eds. Simulation Games in Learning. Beverly Hills, California: Sage Publications, Inc., 1968; Simulation/Gaming: The Journal of Experiential Learning. Moscow, Idaho: Simulation/Gaming/News, Inc.

into it the real problems of a particular professional world, which students need to understand and solve in order to function in that world. In the last three decades, the development of the teaching simulation game has been furthered by such innovations as the pioneering war games constructed during the 1950's by the United States and the model building techniques utilized by economists; the techniques now in use are sophisticated and extensive and need not be categorized merely as "Pacman with a Purpose."

Simulation games varying in price and complexity are available in many areas, including the physical and social sciences, business, education, and law; with these games it is possible to negotiate a treaty, participate in a revolution, lobby for legislation, or manage a bank. While they are fun to play, they are also serious in their educative purpose, for in simulating real world problems they introduce students to the complexities of the decision making process in a particular area and provide opportunities for students to see the consequences of their decisions.

One such simulation game is being used in the Economics department at the University of North Dakota as a means of bringing students more in touch with the world of banking. Although there are some provisions in the curriculum for banking internships, which serve as a bridge between the classroom and the labor market, these opportunities are limited. Local banks train only three or four students during the academic year, the Bank of North Dakota offers one summer internship, and a handful of students occasionally secure such positions on their own; nevertheless, the total number of internships in any given year is small.

Since an economics curriculum tends to be more conceptual than practical in content, and with limited internship opportunities, students gain

very little understanding about the practical aspects of banking or the factors affecting bank decisions and operations. It is not surprising, therefore, that they have expressed concern that they will be seeking jobs for which they have little practical knowledge and only a vague sense of the connection between what they have learned and how they will use it.

Numerous discussions with students reinforced my impression that they were uncertain about their job qualifications, and so I was especially pleased with my first introduction to a banking simulation game. It appeared to me right away to be an effective way of responding positively to students' needs by providing information about bank management and offering a simulated internship experience.

That first introduction to banking simulation occurred at the North Dakota Bankers' School, where Bank Sim, a simulation game developed by the American Banker's Association and the Federal Deposit Insurance Corporation, was integrated into the curriculum. Bank Sim replicates the banking world environment, requiring students to make decisions typical of that environment. Through the decision making process, participants learn how their decisions affect a bank. They discover that their bank may have expanded, contracted or remained the same size; it may have become more profitable or less profitable; or it may have experienced a drastic change in the price of its stock. Whatever the outcome, with information received after every decision, students can assess the impact of various decisions and use this information in subsequent decisions to pursue policies that are clearly advantageous or to alter those that are not. By emulating the major decisions of the banking community, introducing an environment in which several banks compete with one another, and setting the game in an uncertain economic environment, Bank Sim provides an opportunity to learn the practicalities of bank management in the classroom.

The class of twenty men and women playing Bank Sim at the Bankers' School consisted of individuals who worked in banks of varying size, and whose expertise and knowledge varied widely. Most were loan or investment officers who seemed unaware initially of how their jobs fit into the overall scheme of banking, but who learned by playing Bank Sim how closely related are the various banking departments. They were surprised how decisions affecting one area of banking, such as loans, rippled through and affected another area, such as investments. They also learned very quickly that no decision is isolated, but must be considered in relation to other decisions if a bank is to be profitable. It was interesting to observe their enthusiasm for the game and their willingness to spend hours pouring over figures, plotting strategy, and arguing about alternatives. In fact it was their unqualified endorsement, along with my enjoyment as an observer, that convinced me to introduce a banking simulation game into the UND classroom.

Unfortunately, the cost of Bank Sim was prohibitive. The vender, the American Banking Association, would charge a fee of $1000, plus $25 per student.[2] However, I learned that another simulation, similar in design and objectives, was available. The Stanford Bank Management Simulation (SBMS), introduced by Alexander A. Robichek in 1965 and updated approximately every three years since that time, is a reasonably priced simulation for use in universities. For $350 it is possible to purchase the game and the teacher's manual and use it indefinitely without additional costs. The student's manual, priced at $6.20, also helps to keep students' expenses within reason. In the fall of 1981, funded by a grant from the Faculty

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[2]Costs are averages of several different sets of Bank Sim.

Instructional Development Committee at the University of North Dakota, I purchased SBMS VII and introduced in into the classroom.

The purpose of SBMS VII is probably best described by the accompanying instructor's manual. The primary objective of the game

> . . . is to provide a stimulating learning environment for the participants by exposing them to the overall problems of managing a commercial bank . . . the simulator is designed to be operated as a competitive game. Participants are divided into teams, with each team managing an individual bank. Each bank is identical in its initial position. Over a period of time the bank management teams make decisions that determine the future growth and profitability of their banks. An "economic environment" representing the economy is programmed into the model.

In preparation for game play, two classes in Financial Markets and Institutions were organized into eight "banks" ranging in size from three to five members. The first order of business for each bank was to assign officers who would assume roles as president, senior loan officer, senior investment officer, marketing director, and financial director in charge of capital adequacy. Once the essential organization was in place, each bank was requested to submit a one page report outlining the goals and strategies it would follow throughout the hypothetical three year duration of the game. After a thorough discussion of the decision making process, participants began to play.

In this competitive simulation every bank began at the same initial position; that is, every bank had the same balance sheet, income statement and investment portfolio. On the basis of this information and general information about the future performance of the economy, each bank was required to make a set of decisions for the next quarter that would help it realize the short and long term goals delineated in the strategy sessions.

As a mechanical process, decision making, which occurred on a weekly basis throughout the semester, was simple. Groups recorded information on

interest rates, service charges, salaries, sales and purchases of securities, and plans to alter capital structure. Since all banks received the same information for the first quarter of the first year, they had eleven subsequent decisions to make: three in the first year, and four in each of the remaining years.

After each decision, banks were required to submit reports describing briefly what decisions they had made and why they had made them. If they had experienced difficulties in a particular area, such as capital adequacy, they were required to submit an additional report explaining what steps they were planning to take to remedy the problem. The reports from each bank were kept in individual folders in my office and were available to students on request.

One of the most important lessons students had to learn was to price their loans high enough to cover the cost of their deposits. Because loans represented their largest source of revenue and deposit money was their largest expense, profitability depended upon their ability to price both loans and deposits so that the revenue from loans would more than cover the cost of deposits. At the same time they had to be aware of their competitors. If they priced their loans higher than their competitors, they would attract very few customers and revenues would fall off. On the other hand if they priced too low, they would attract far more loans than their deposit base could support and they would have to borrow from other banks at expensive rates. Almost invariably, this cut into profits dramatically. An appendix contains a sample printout with an example of a bank that underpriced and was forced to borrow in the federal funds market. As a result of poor pricing decisions, earnings per share fell, stock prices fell, the capital adequacy ratio dropped sharply and the bank became smaller.

For the first three weeks all class time was spent on the banking simulation. Because initial quarterly decisions took from two to six hours to make, class time was allocated for this, but as the semester progressed and students became familiar with various aspects of the game, the class began to return to the traditional lecture format. But students still used some class time after every decision round to discuss and evaluate their work.

The evaluation process was made easier because every bank received information about all of the other competing banks in the community. However, the amount of information flowing from every decision period seemed overwhelming, especially in the early stages of the game. To facilitate comparisons and give a better evaluation of performance, I charted statistics on stock prices, earnings per share, price equity ratios, loan deposit ratios, capital adequacy ratios and rate of growth, and displayed them prominently on my office door.

As students became accustomed to this procedure and more adept at reading charts, they began to congregate on the days the latest information was charted. Probably these postings stimulated competition; in any case, they certainly elicited strong reactions from the students, who would respond with whoops of delight when their banks were leading and groans of despair when they fell behind. Students from stronger banks, aware that their superior position could be short-lived, made the most of each success and proclaimed their skills and wisdom with a considerable amount of good natured bragging. Invariably this set the stage for a more determined effort on the part of the underdogs who became even more boisterous when their banks turned the tables and became the profitable ones.

As groups coalesced and identified with their banks, competition among banks increased. It was this strong competitive environment, the pride of performance rather than the quest for a grade, that stimulated effort and brought about innovative approaches to decision making. As competition mounted, so did interest in the charts that served as a barometer of performance. Since they were on my office door, I found that traffic and discussion increased significantly over the course of the game, and I began spending more and more time with students, examining their output and discussing alternative strategies.

While the game ended in a burst of excitement with classroom reports delivered by each bank president to the "Board of Governors," that positive attitude was not always present. Despite their enthusiasm when they learned the course would include a banking simulation game, students were apprehensive when confronted with it. This insecurity was most pronounced during the preparation of their first reports on goals and strategies, when they were anticipating the decisions that lay ahead of them. Many of them seemed overwhelmed at the prospect of running a bank and concerned that their ignorance of banking would result in immediate failure of their operation. They also expressed doubt about the feasibility of group decisions, particularly when most of them did not know one another, or knew one another only casually.

At the conclusion of the game, students discussed those initial reactions, expressed amusement at their lack of awareness of simple banking practices, and commented on the inadequacies of their first reports on which they had worked so assiduously. From their new vantage point they were able to draw up comprehensive plans for goals and strategies, to quantify these goals, to specify strategies, and to do all of this with

minimum effort. The speed and facility with which they were able to accomplish a task that had seemed so onerous early in the semester is proof that the game had been a useful learning experience.

Students also noted that communication skills improved over time. Many commented that they were too quiet in the beginning and in retrospect they saw that their reluctance to participate harmed the bank's performance. Recognition that their input was significant brought about important changes. Discussions became more analytical and heated, and group cohesiveness increased.

The decision not to grade the game play met with approval. Although criteria were set whereby performance could be evaluated and winners declared, there was agreement that final standings could not give an accurate reflection of learning. Instead students were assigned a paper in which they were asked to evaluate their game performance, indicate the strengths and weaknesses of their play and offer an alternative game plan that would improve upon that original. This paper, which comprised 20% of the final grade, was used to evaluate student performance.

There are disadvantages to this grading approach, however, since individuals within the group are liable to be neglectful. Fortunately, interest in the game grew over time. Some students who began to play reluctantly were eventually swept up in the enthusiasm that surrounded "output" day and very few students were derelict in the decision making process. Still, in a group effort it is likely that contributions will be uneven. To counter this, it might be preferable for each group to grade its members. This system would probably be fairer to those individuals who are particularly enthusiastic about the game and who work hard laying the foundation for speedier group decisions.

While many teaching concerns relating to student anxiety, grading and integration of material were allayed along the way, some have remained; for example, I am still not sure how to introduce the game most effectively. Students need sufficient background information, but determining how much to give is difficult. Too much information dulls interest and too little creates frustration and uncertainty. Perhaps it would be helpful for students to have an experimental run, to go through the decision making process and gain some insights into the game before settling in to play in earnest. At the conclusion of the game almost all students wished that they could start over again, avoid their old mistakes, employ innovative strategies and end up as game winners. They all felt that better preparation would have enhanced their playing skills, but could offer no constructive way of learning except by playing.

The biggest disadvantage in using the simulation was the time it took to learn the game and determine how it could be integrated into the course. The task was also complicated because the only guide was a manual which served as a rule book rather than a handbook for instruction. Considering the many options of game play and the information generated throughout the course of the game, a teaching guide would have been very helpful.

Because of an enthusiastic endorsement by students, I plan to continue using the Stanford Bank Management Simulation Game. It stimulated learning, taught fundamentals of bank management, and fostered communication skills. Students began to recognize that previous courses, which had often been perceived as theoretical and therefore of questionable value, had actually developed their analytical skills and facilitated the decision making process. They also recognized that many of the terms, definitions and concepts that had seemed important only for examination purposes were vital

to successful game play. As many students remarked, the game was a useful device for "bringing things together".

It did require a more flexible approach to teaching and a willingness to forego some of the structure that had characterized previous semesters. Nevertheless, it was worth the effort, particularly when so many students expressed a renewed confidence about employment in the banking world. In many discussions with them, it was evident that their positive attitudes were a result of two factors. Their experience as bank managers gave them a good overview of bank operations, and their game play within a competitive environment heightened their awareness of, and sensitivity to, the peculiar problems, needs and concerns of the banking community. Thus, the banking simulation game provided a unique opportunity to develop communication and management skills and defuse some employment anxieties without imposing unreasonable costs of money, time and effort.

Not surprisingly, the answer to the question to simulate or not to simulate is, in this case, a resounding yes.

Biographical Note

Denise Markovich is Assistant Professor of Economics at the University of North Dakota. She has a BA in Economics and Political Science from the University of Western Ontario, an MA in Economics from the University of North Dakota, and a PhD in Economics from the University of Manitoba. She is presently co-authoring, with Ronald Pynn of the Political Science Department, a text on political economy, to be published by Brooks/Cole Publishing Company.